

It is evident, then, that *C. edentula* is a species of northern origin, originally extending from Iceland to the North Pacific but since the Pleistocene segregated into three geographic areas, the north Atlantic shores, shores of the Great Lakes and shores of the Pacific; and that in each of these areas the species has developed local tendencies which, although of geographic significance, are not to be considered of specific value. The three variations are

CAKILE EDENTULA (Bigelow) Hook., var. **typica**. *C. edentula* (Bigel.) Hook. Fl. Bor.-Am. i. 59 (1830); Millsp. Field Mus. Bot. Ser. ii. 129 (1900). *Bunias edentula* Bigel. Fl. Bost. 157 (1814). *C. americana* Nutt. Gen. ii. 62 (1818); Millsp. 1. c. 127 (1900); in part. *C. maritima* β . Torr. & Gray, Fl. i. 119 (1838), in great part. *C. maritima*, var. *americana* (Nutt.) Torr. Fl. N. Y. i. 66 (1843), mostly. *C. lanceolata*, subsp. *edentula* (Bigel.) O. E. Schulz in Urban. Symb. Ant. iii. 504 (1903).—Upper joint of silique ovoid or rarely ovoid-lanceolate, short-beaked, its articulating base without pits or pits only rudimentary; articulating summit of lower joint without processes or processes barely developed.—Iceland and Labrador to South Carolina, rarely inland to the Great Lakes; Azores.

Var. **lacustris**, n. nom. *C. americana* Millsp. 1. c. 127 (1900) as to plant described (the Great Lake plant), not Nutt.—Upper joint of silique ovoid-lanceolate, long-beaked, its articulating surface with two deep and four shallow pits; articulating summit of lower joint with two long and four short subulate processes.—Strands of Lakes Ontario, Erie, Huron and Michigan. Since Millspaugh mistook this for Nuttall's *C. americana*, it is well to designate a TYPE: sand along Lake Michigan, Millers, Indiana, September 4, 1911, *E. E. Sherff* in Gray Herb.

Var. **californica** (Heller), n. comb. *C. californica* Heller, Muhlenbergia, iii. 10 (1917).—Stiffer, with more ascending branches than var. *typica*; fruits similar, but the articulating surfaces with six well developed processes and pits.—Coast of the Pacific, from British Columbia to California.

GRAY HERBARIUM.

A NEW SPECIES OF ELEOCHARIS FROM MASSACHUSETTS

C. A. WEATHERBY.

ELEOCHARIS fallax n. sp., perennis; rhizomate longe repente, diametro circa 2 mm., paleis amplexantibus herbaceis striatis longe acuminatis fusco-rubris obsito; culmis fasciculatis, sectione transversali subteretibus vel siccatis leviter compressis, subellipticis, striatis, gracilibus (diametro ad apicem vaginae superioris 0.5–1.1 mm.),

3-7.6 dm. (plerumque 3-4 dm.) altis; vaginis superioribus rubro-tinctis, apice suboblique truncato integro nec incrassato cartilagineoque nec hyalino juventute punctato aetate fusco; spiculis ovatis vel lanceolatis, acutis, 7-10 mm. longis, circa 3 mm. latis; squamis ovato-vel obvato-oblongis, obtusis, 2.5-3 mm. longis, superne castaneis vel fusco-rubris, costa viridescente, apice et margine angusto hyalinis; setis 3-4(-5), retrorse barbatis, acheniis paullo vel etiam dimidio brevioribus stylis trifidis; acheniis 1.7-2 mm. longis (tuberculo incluso), circa 1 mm. latis, obtuse triangulatis, obovoideis, luteis, levissime reticulato-rugulosis postquam squamae decidunt persistentibus; tuberculis griseis pyramidalibus, acutis, 0.4-0.5 mm. altis, equaliter vel paullo minus latis, ab acheniis evidenter distinctis, basi quam punctus insertionis latioribus.

Perennial; rootstock creeping, about 2 mm. in diameter, beset with sheathing, herbaceous, striate, long acuminate, dark red scales; culms clustered, subterete or, at least in dried specimens, slightly compressed and somewhat elliptic in cross-section, striate, slender (0.5-1.1 mm. in diameter at the summit of the upper sheaths), 3-7.6 dm., averaging 3-4 dm., tall; upper sheaths tinged with red, subobliquely truncate at summit, the margin there entire, not thickened and cartilaginous nor hyaline, finely red-punctate when young, dark in age; spikelets ovate or lanceolate, acute, 7-10 mm. long, about 3 mm. broad; scales ovate- or obovate-oblong, obtuse, 2.5-3 mm. long, castaneous or dark red above with green mid-rib and narrow hyaline apex and margin; styles three-parted; bristles present, 3-4(-5), downwardly barbed, half as long as the achene or only a little shorter; achenes 1.7-2 mm. long (tubercle included), about 1 mm. broad, obtusely triangular, obovoid, yellow, very slightly reticulate-roughened by the raised walls of the epidermal cells, persistent after the fall of the scales; tubercles gray, pyramidal, acute, 0.4-0.5 mm. high, about as broad or a little narrower, evidently distinct from the body of the achene, the base wider than the point of attachment so that the lateral portions, especially at the angles, are free.—MASSACHUSETTS: fresh and barckish springy border of Dinah's Pond, Yarmouth, Aug. 16, 1919, *Fernald & Long*, no. 18,025.

A somewhat puzzling plant. It has the aspect and entire sheaths of the group of *E. palustris*, but is at once distinguished therefrom by its three-parted styles and bluntly trigonous achenes. It combines some of the characters of *E. capitata* (*E. tenuis*) and of *E. arenicola*, but differs from the former in its much smoother achenes and in the regular presence of bristles, from the latter in that the achenes are persistent after the fall of the scales, and from both in the larger size of the achenes and the entire sheaths. *E. arenicola* is apparently its nearest relative—one of the many cases in which a southern type reappears on Cape Cod.

E. arenicola Torr., of which *E. fallax* may be regarded as a north-eastern representative, is a species of wide range, extending from South Carolina along the coast to Florida and Texas, thence westward across the continent, apparently following the tertiary and quarternary formations, to southern California and southward, through many Mexican stations, to Guatemala. It varies considerably in certain characters. In all the specimens seen from the southeastern states, the achene is fuscous and the whole base of the tubercle is adnate to it. In typical *E. arenicola* from Texas the achene is yellow and the point of attachment less wide than the base of the tubercle so that its lateral portions are free. Both types of achene and intergradient forms occur, however, in Californian and Mexican material and, as there are no correlating characters, segregation on these lines seems impracticable.

Since most of the Mexican specimens of *E. arenicola* were distributed as *E. montana*, *E. truncata*, or without a name, it may be worth while to cite representative specimens. Such are: Saltillo, Coahuila, June, 1898, *Palmer*, no. 255; in paludosis, Morales, San Luis Potosi, 1876, *Schaffner*, no. 577, and Penasco, no. 578; Durango, 1896, *Palmer*, nos. 99, 974; Valley of Oaxaca, April 19, 1896, *Conzatti*, no. 94.

E. arenicola is apparently closely allied to *E. montana* (HBK.) R. & S., with which it has been united. There is in the Gray Herbarium a single specimen (*Lehmann*, no. 8735) which is from the type region of *E. montana* and which, as Dr. Britton has noted on the sheet, may represent that species. Except in the shape of the spikelet, it agrees well with the original description, especially in the two points, the many-flowered spikelet and the more or less acute scales, in which it differs most conspicuously from *E. arenicola*. It seems likely that *E. arenicola* and *E. montana* are closely related, but sufficiently distinct species.

Two other species, *E. Dombeyana* Kunth and *E. truncata* Schlecht., have also been referred to *E. montana*, but, from the specimens on hand, appear very distinct. The former is a plant of the South American Andes, ranging, so far as the material seen indicates, from Ecuador to Bolivia. There is no absolutely authentic specimen in the Gray Herbarium, but the following seem certainly to belong here: ECUADOR: in Andibus, 1857-9, *Spruce*, no. 5912; in hot springs at Banos,

vicinity of Cuenca, Sept. 17-24, 1908, *Rose*, no. 22893. BOLIVIA: vicinity of La Paz, alt. 10,000 ft., 1890, *Bang*, no. 144; vicinity of Cochabamba, 1891, *Bang*, no. 996.

E. truncata is apparently a very local plant of the Federal District of Mexico. It is very close to *E. Dombeyana*, from which it is distinguished by its longer and proportionately narrower spikelets and by the slightly different shape of the achenes. Here belong the following: MEXICO, FEDERAL DISTRICT: wet soil, Cuantitlan, Aug. 14, 1899, *Pringle*, no. 8214; Valley of Mexico, May 7, 1898, *Pringle*, no. 7655; bords des fossés, près Mexico, May 3, 1866, *Bourgeau*, no. 214.

The appended key may help to distinguish the plants discussed.

- a. Achenes 1-1.5 mm. long; upper sheaths commonly mucronate.
- b. Tubercle mucroniform, its sides nearly parallel, much less than half as wide as the body of the nearly smooth achene.
- c. Spikelets ovate, the largest not over 8 mm. long.....*E. Dombeyana*.
- c. Spikelets lanceolate to linear, rarely under 8 and up to 12 mm. long.....*E. truncata*.
- b. Tubercle pyramidal, much wider at base than above, about half as wide as the body of the achene, which is distinctly though lightly reticulate-roughened under magnification.
- d. Well-developed spikelets 70-85-flowered; scales oblong-ovate, at least the upper acute.....*E. montana*.
- d. Well-developed spikelets not over 45-flowered; scales all very obtuse.....*E. arenicola*.
- a. Achenes 1.7-2 mm. long, lightly but distinctly reticulate-roughened under magnification; tubercle pyramidal; upper sheaths entire.....*E. fallax*.

GRAY HERBARIUM

NOTES ON SPARGANIUM.

M. L. FERNALD.

SINCE the publication¹ in 1907 of the detailed notes on *Sparganium* much material has accumulated and new light has been thrown on the identities and ranges of our species.

Prior to the war the most scholarly authority on the genus, Professor Wladislaw Rothert, formerly of the University of Odessa, later residing at Riga or at Cracow, had in preparation a monograph of the genus and some of the matter here presented was to have been published by him. Since, however, Dr. Rothert suffered the tragic

¹ Fernald & Eames, RHODORA, ix. 86 (1907).